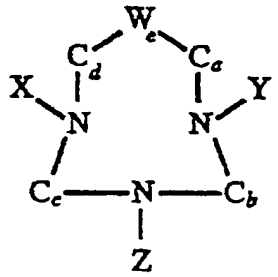
We claim:

1. A method for treating an individual suffering from a pathological conditions which is ameloriated by suppression of CD4+-T-cell-mediated immune response, other than a condition resulting from viral infection, which comprises the step of administering to the individual a therapeutically effective amount of a triaza macrocyclic compound having the formula:



or a pharmaceutically acceptable salt or solvate thereof wherein:

W represents a bridge carbon which is unsubstituted or which is bonded directly or indirectly to one or two polar or non-polar side group substituents selected from the group consisting of double-bonded carbon (=$C(H)_2$ or =$C(R)_2$), double bonded oxygen (=O), hydroxyl, alkyl of about one to 10 carbons, alkenyl of about two to 10 carbons (preferably of 2 to 6 carbon atoms); a substituted alkyl group carrying a charged substituent, such as an $-S(R'')_2^+$, an $-N(R'')_3^+$, a $-PR_3^+$, or an $-OSO_3^-$ group, alkoxy of about one to 10 carbons; aryl of about 6 to 12 carbons; halogen, methyl halogen (-CT_3, -CHT_2, or -CH_2T), methylene halide (=CT_2); optionally substituted epoxide (or oxirane); acyl (-CO-R); (-CO_2-R); CH_2OH and hydrogen; where halogen is F, Cl, I or Br; T, independently of other T, is F, Cl, I or Br, but preferably all T are the same halogen; R, independently of other R, is an optionally substituted alky of about one to 10 carbons (preferably of one to 6 carbon atoms), an optionally substituted alkenyl group of about 2 to 10 carbon atoms or an optionally substituted aryl group of about 6 to 12 carbons; and R" is a hydrogen or an alkyl group having from one to 10 carbon atoms and W may be bonded to one hydrogen and one polar or non-polar group;

X and Y, independently, represent an optionally substituted aryl group (Ar), an optionally substituted alkyl group having from one to 10 carbon atoms, or an optionally substituted alkenyl group having from 2 to 10 carbon atoms attached to the triaza macrocycle through an optional linker group L; where the linker group L can be sulfonyl ($-SO_2-$), –SO–, –PO –, –PO(OH)–,

$-PO(H)-$, $-PO_2(OH)-$, $-PO_2(H)-$, $-PO_3(OH)-$, carboxy (-OCO-), carbonyl (-CO-), or $-(CH_2)_n-$ where n is 1 or 2-; where Ar comprises at least one aromatic homocyclic or heterocyclic ring having from five to seven members; wherein the Ar ring can be substituted with one or more non-hydrogen substituent groups; Ar group substituents are one or more halogens, one or more –CN; one or more $-SO_3$, -SH, -SR or -S-OR groups; one or more trihalomethyl groups; one or more NO, one or more NO_2, one or more NH_2, NHR or $N(R)_2$ groups; one or more alkyl groups, one or more alkoxy groups, one or more hydroxyl groups, one or more acyl groups (-COH or -CO-R), one or more acid or ester groups ($-CO_2H$ or $-CO_2R$, respectively), where R, independently of other R, is an alky of about one to 10 carbons or an aryl group of about 7 to 10 carbons and wherein X and Y are not both an alkyl group;

Z represents a hydrogen, or optionally substituted aryl, alkyl or alkenyl groups attached to the triaza macrocycle though a linking group L^3, wherein the aryl, alkyl and alkenyl groups and the linking group of Z are as described under X and Y variables above;

C labeled with subscripts a-d represent carbon bridges, preferably alkylene bridges, between nitrogens, these carbon bridges, the length of which is defined by the values of subscripts a-d and e, may all be the same length or may differ in length, each bridge may be composed entirely of saturated alkyl groups, or one or more bridges may contain one or more double or triple bonds between carbons, additionally one or more bridge carbons can be optionally substituted with one or more polar groups, and aromatic rings, non-aromatic rings or both may be fused to one or more of the carbon atom bridges; and

a and d, independently, represent a number from zero to 10; b and c, independently, represent a number from one to 10; and e represents a number from zero to three.

2. The method of claim 1 wherein e is 1 and W is double-bonded carbon ($=C(H)_2$ or $=C(R)_2$), a double bonded oxygen (=O), a methylene halide, or a carbon bonded to one or two groups selected from hydrogen, hydroxyl, alkyl groups of about one to 10 carbons, alkenyl groups of about two to 10 carbons, a substituted alkyl group carrying a charged substituent, alkoxy groups of about one to 10 carbons; aryl groups of about 6 to 12 carbons; halogens, methyl, an optionally substituted epoxide (or oxirane); acyl (-CO-R); ($-CO_2-R$); and CH_2OH; where the halogen is F, Cl, I or Br; and R independently of other R, is an optionally substituted alky of about one to 10 carbons, an optionally substituted alkenyl group of about 2 to 10 carbon atoms or an optionally substituted aryl

group of about 6 to 12 carbons and R" is a hydrogen or an alkyl group having from one to 10 carbon atoms.

3. The method of claim 2 wherein W is $>C=C(H)_2$, $>C=C(R)_2$, or $>C(T)_2$.

4. The method of claim 1 wherein and Y independently represent an optionally substituted aryl group attached to the triaza macrocycle through an optional linker group L; where the linker group L can be $-SO_2-$, –SO–, –PO–, –PO(OH)–, –PO(H) –, $-PO_2(OH)-$, $-PO_2(H)-$, $-PO_3(OH)-$, -CO-, -CO-, or alkyl.

5. The method of claim 4 wherein L is $-SO_2-$.

6. The method of claim 5 wherein X and Y are selected from tosyl groups or dansyl groups.

7. The method of claim 1 wherein Z is an optionally substituted aryl, alkyl or alkenyl group attached to the triaza macrocycle though a linking group L^3 selected from the groups consisting of $-SO_2-$, –SO–, –PO –, –PO(OH) –, –PO(H) –, $-PO_2(OH)-$, $-PO_2(H)-$, $-PO_3(OH)-$, -OCO-, -CO-, and alkyl.

8. The method of claim 7 wherein L^3 is an alkyl, -CO- or –OCO- group.

9. The method of claim 7 wherein Z is a benzyl groups, a methylene cyclohexane group, or a methylene cyclohexene group.

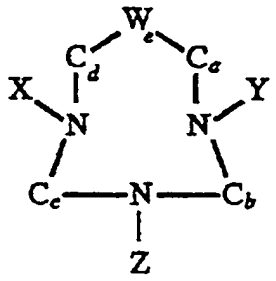
10. The method of claim 1 wherein a, d and e are all 1 and b and c are 3.

11. The method of claim 1 wherein the pathological condition is an autoimmune disorder or a chronic inflammatory disease.

12. The method of claim 1 wherein the pathological condition is graft-versus host disease or transplant rejection.

13. The method of claim 1 wherein the pathologic condition is rheumatoid arthritis, type I-diabetes mellitus, autoimmune demyelinating diseases such as multiple sclerosis, inflammatory bowel disease syndrome, psoriasis, discoid lupus erythematosus, systemic lupus erythematosus (SLE),adult respiratory distress syndrome, cardiovascular atherosclerosis, leukocytosis, or asthma.

14. A method for downregulating CD4 expression on T cells by exposing the T cells to an amount of a triaza compound of formula:



or a pharmaceutically acceptable salt or solvate thereof that is effective for downregulating expression of CD4
wherein:

W represents a bridge carbon which is unsubstituted or which is bonded directly or indirectly to one or two polar or non-polar side group substituents selected from the group consisting of double-bonded carbon (=$C(H)_2$ or =$C(R)_2$), double bonded oxygen (=O), hydroxyl, alkyl of about one to 10 carbons alkenyl of about two to 10 carbons; a substituted alkyl group carrying a charged substituent, such as an $-S(R'')_2^+$, an $-N(R'')_3^+$, a $-PR_3^+$, or an $-OSO_3^-$ group, alkoxy of about one to 10 carbons; aryl of about 6 to 12 carbons; halogen, methyl halogen(-CT_3, -CHT_2, or -CH_2T), methylene halide (=CT_2); optionally substituted epoxide (or oxirane); acyl (-CO-R); (-CO_2-R); CH_2OH and hydrogen; where halogen is F, Cl, I or Br; T, independently of other T, is F, Cl, I or Br, but preferably all T are the same halogen; R, independently of other R, is an optionally substituted alky of about one to 10 carbons, an optionally substituted alkenyl group of about 2 to 10 carbon atoms or an optionally substituted aryl group of about 6 to 12 carbons and R" is a hydrogen or an alkyl group having from one to 10 carbon atoms and W may be bonded to one hydrogen and one polar or non-polar group;

X and Y independently represent an optionally substituted aryl group (Ar), an optionally substituted alkyl group having from one to 10 carbon atoms, or an optionally substituted alkenyl group having from 2 to 10 carbon atoms attached to the triaza macrocycle through an optional linker group L; where the linker group L can be sulfonyl ($-SO_2-$), $-SO-$, $-PO-$, $-PO(OH)-$, $-PO(H)-$, $-PO_2(OH)-$, $-PO_2(H)-$, $-PO_3(OH)-$, carboxy (-OCO-), carbonyl (-CO-), or $-(CH_2)_n-$ where n is 1 or 2-; where Ar comprises at least one aromatic homocyclic or heterocyclic ring having from five to seven members; wherein the Ar ring can be substituted with one or more non-hydrogen substituent groups; Ar group substituents include one or more halogens, one or more –CN; one or more $-SO_3$, -SH, -SR or -S-OR groups; one or more trihalomethyl groups; one or more NO, one or more NO_2, one or more NH_2, NHR or $N(R)_2$ groups; one or more alkyl groups, one or more alkoxy groups, one or more hydroxyl groups, one or more acyl groups, one or more acid or ester groups ($-CO_2H$ or $-CO_2R$, respectively), where R, independently of other R, is an alky of about one to 10 carbons or an aryl group of about 7 to 10 carbons and wherein X and Y are not both an alkyl group;

Z represents a hydrogen, or optionally substituted aryl, alkyl or alkenyl groups attached to the triaza macrocycle though a linking group L^3, wherein the aryl, alkyl and alkenyl groups and the linking group of Z are as described under X and Y variables above;

C labeled with subscripts a-d represent carbon bridges, preferably alkylene bridges, between nitrogens, these carbon bridges, the length of which is defined by the values of subscripts a-d and e, may all be the same length or may differ in length, each bridge may be composed entirely of saturated alkyl groups, or one or more bridges may contain one or more double or triple bonds between carbons, additionally one or more bridge carbons can be optionally substituted with one or more polar groups, for example, halogens or hydroxy groups, and additionally aromatic, non-aromatic rings or both may be fused to one or more of the carbon atom bridges; and

a and d, independently, represent a number from zero to 10; b and c, independently, represent a number from one to 10; and e represents a number from zero to three.

15. The method of claim 14 wherein e is 1 and W is double-bonded carbon ($=C(H)_2$ or $=C(R)_2$), a double bonded oxygen (=O), a methylene halide, or a carbon bonded to one or two groups selected from hydrogen, hydroxyl, alkyl groups of about one to 10 carbons, alkenyl groups of about two to 10 carbons, a substituted alkyl group carrying a charged substituent, alkoxy groups of about

one to 10 carbons; aryl groups of about 6 to 12 carbons; halogens, methyl, an optionally substituted epoxide (or oxirane); acyl (-CO-R); (-CO_2-R); and CH_2OH; where the halogen is F, Cl, I or Br; and R independently of other R, is an optionally substituted alky of about one to 10 carbons, an optionally substituted alkenyl group of about 2 to 10 carbon atoms or an optionally substituted aryl group of about 6 to 12 carbons and R" is a hydrogen or an alkyl group having from one to 10 carbon atoms.

16. The method of claim 15 wherein W is $=C(H)_2$ or $=C(R)_2$, or $>C(T)_2$.

17. The method of claim 14 wherein X and Y independently represent an optionally substituted aryl group attached to the triaza macrocycle through an optional linker group L; where the linker group L can be $-SO_2-$, –SO–, –PO –, –PO(OH)–, –PO(H)–, $-PO_2(OH)-$, $-PO_2(H)-$, $-PO_3(OH)-$, -OCO-, -CO-, or alkyl.

18. The method of claim 17 wherein L is $-SO_2-$.

19. The method of claim 18 wherein X and Y are selected from tosyl groups or dansyl groups.

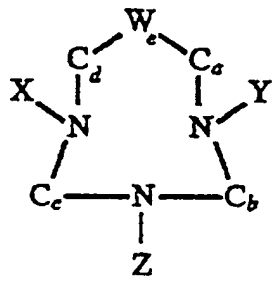
20. The method of claim 14 wherein Z is an optionally substituted aryl, alkyl or alkenyl group attached to the triaza macrocycle though a linking group L^3 selected from the groups consisting of $-SO_2-$, –SO–, –PO –, –PO(OH)–, –PO(H)–, $-PO_2(OH)-$, $-PO_2(H)-$, $-PO_3(OH)-$, -OCO-, -CO-, or alkyl.

21. The method of claim 20wherein L^3 is an alkyl, -CO- or –OCO- group.

22. The method of claim 20 wherein Z is a benzyl groups a methylene cyclohexane group or a methylene cyclohexene group.

23. The method of claim 14 wherein a, d and e are all 1 and b and c are 3.

24. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a therapeutically effective combined amount of one or more triaza macrocycle compounds of formula:



or a pharmaceutically acceptable salt or solvate thereof that is effective for downregulating expression of CD4

wherein:

W represents a bridge carbon which is unsubstituted or which is bonded directly or indirectly to one or two polar or non-polar side group substituents selected from the group consisting of double-bonded carbon, double bonded oxygen, hydroxyl, alkyl of about one to 10 carbons alkenyl of about two to 10 carbons; a substituted alkyl group carrying a charged substituent, such as an $-S(R'')_2^+$, an $-N(R'')_3^+$, a $-PR_3^+$, or an $-OSO_3^-$ group, alkoxy of about one to 10 carbons; aryl of about 6 to 12 carbons; halogen, methyl halogen($-CT_3$, $-CHT_2$, or $-CH_2T$), methylene halide ($=CT_2$); optionally substituted epoxide (or oxirane); acyl (-CO-R); ($-CO_2$-R); CH_2OH and hydrogen; where halogen is F, Cl, I or Br; T, independently of other T, is F, Cl, I or Br, but preferably all T are the same halogen; R, independently of other R, is an optionally substituted alky of about one to 10 carbons, an optionally substituted alkenyl group of about 2 to 10 carbon atoms or an optionally substituted aryl group of about 6 to 12 carbons and R" is a hydrogen or an alkyl group having from one to 10 carbon atoms and W may be bonded to one hydrogen and one polar or non-polar group;

X and Y independently represent an optionally substituted aryl group (Ar), an optionally substituted alkyl group having from one to 10 carbon atoms, or an optionally substituted alkenyl group having from 2 to 10 carbon atoms attached to the triaza macrocycle through an optional linker group L; where the linker group L can be sulfonyl ($-SO_2-$), $-SO-$, $-PO-$, $-PO(OH)-$, $-PO(H)-$, $-PO_2(OH)-$, $-PO_2(H)-$, $-PO_3(OH)-$, carboxy (-OCO-), carbonyl (-CO-), or $-(CH_2)_n-$

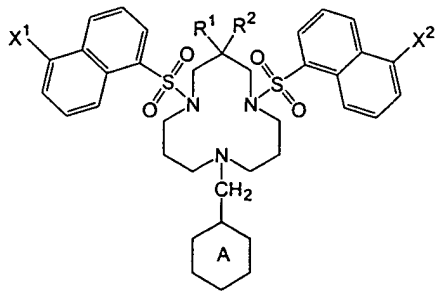
where n is 1 or 2-; where Ar comprises at least one aromatic homocyclic or heterocyclic ring having from five to seven members; wherein the Ar ring can be substituted with one or more non-hydrogen substituent groups; Ar group substituents include one or more halogens, one or more –CN; one or more $-SO_3$, -SH, -SR or -S-OR groups; one or more trihalomethyl groups; one or more NO, one or more NO_2, one or more NH_2, NHR or $N(R)_2$ groups; one or more alkyl groups, one or more alkoxy groups, one or more hydroxyl groups, one or more acyl groups (-COH or -CO-R), one or more acid or ester groups ($-CO_2H$ or $-CO_2R$, respectively), where and R, independently of other R, is an alky of about one to 10 carbons or an aryl group of about 7 to 10 carbons and wherein X and Y are not both an alkyl group;

Z represents a hydrogen, or optionally substituted aryl, alkyl or alkenyl groups attached to the triaza macrocycle though a linking group L^3, wherein the aryl, alkyl and alkenyl groups and the linking group of Z are as described under X and Y variables above;

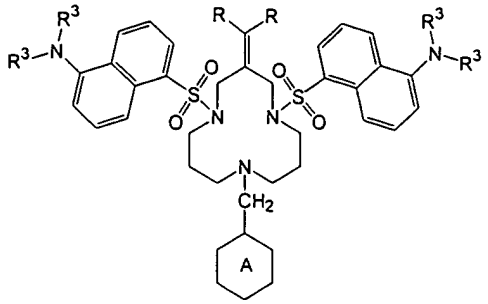
C labeled with subscripts a-d represent carbon bridges, preferably alkylene bridges, between nitrogens, these carbon bridges, the length of which is defined by the values of subscripts a-d and e, may all be the same length or may differ in length, each bridges may be composed entirely of saturated alkyl groups, or one or more bridges may contain one or more double or triple bonds between carbons, additionally one or more bridge carbons can be optionally substituted with one or more polar groups, and additionally aromatic, non-aromatic rings or both may be fused to one or more of the carbon atom bridges; and

a and d, independently, represent a number from zero to 10; b and c, independently, represent a number from one to 10; and e represents a number from zero to three.

25. A triaza macrocylic compound of formula:



or



or a pharmaceutically acceptable salt or solvate thereof wherein:

X^1 and X^2 independently can be a charged, polar or non-polar substituent;

the A ring is an optionally substituted phenyl ring, an optionally substituted cyclohexane ring or an optionally substituted cyclohexene ring;

R^1 and R^2 represent substituents on the central carbon of one of the carbon bridges which independently, can be a hydrogen, hydroxyl, halogen, an optionally substituted alkyl group having one to 10 carbon atoms, an optionally substituted alkenyl group having 2 to 10 carbon atoms; optionally substituted alkoxy of about one to 10 carbons; methyl halogen($-CT_3$,$-CHT_2$, or $-CH_2T$); epoxide (or oxirane); acyl (-CO-R); ester (-CO2-R); CH_2OH and hydrogen; or R^1 and R^2 together can represent a double-bonded carbon which in turn is bonded to one or two hydrogens and/or R' groups (i.e., $=CH_2$, =CRH, or $=C(R)_2$), methylene halide ($=CT_2$);or a double bonded oxygen (=O)., where halogen is F, Cl, I or Br; T, independently of other T, is F, Cl, I or Br, and

R and R^3, independently of other R and R^3, is an optionally substituted alkyl, ether or thioether of about one to 10 carbons or an aryl group of about 7 to 10 carbons and wherein the R groups are optionally substituted and two R in the same group can form a cyclic moiety.

26. The compound of claim 25 wherein X^1 and X^2 are alkyl amines.

27. The compound of claim 26 wherein the A ring is an optionally substituted phenyl ring.

28. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and one or more compounds of claim 25 in a combined amount that is therapeutically effective.